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PATENT SPECIFICATION

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DRAWINGS ATTACHED

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(19)

(54) AN IMPROVED LIQUID SPRAYING DEVICE

(71) I, IVOR ARNOLD WIGLEY, a British Subject of Cavendish Mill, Matlock, Derbyshire do hereby declare the invention for which I pray that a Patent may be granted to me and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention relates to an improved liquid spraying device, of the kind having a frame-like support, a coupling member for releasably connecting the support to a pipe line, a nozzle for communication with the pipe line, and a liquid spreader element opposite and spaced from the nozzle for dispersing liquid from the nozzle in fine spray or mist form.

An object of the invention is to provide such a liquid spraying device of improved design and providing for ready accessibility of the nozzle for cleaning the same.

The invention provides a liquid spraying device of the kind referred to wherein the frame-like support is formed with a housing portion in which is a stepped bore including a lower larger diameter bore having screw threads to receive a screw threaded part of a coupling member, and an upper smaller diameter bore in which the nozzle is located, the nozzle having an outwardly extending flange which seats on the step in the bore and enables the nozzle to be held in position by the coupling member.

There may be different sized gaps between the spreader element and the nozzle for different sized nozzles.

The support frame may have rib formations such as for strength and to assist in required deflection of the liquid mist or spray. Side limbs of the support frame may also assist in required deflection of the liquid mist or spray. Conveniently the frame support and said housing portion are constructed as an integrally formed unit.

In order that the invention may be more readily understood reference will now be made to the drawings accompanying the Provisional Specification in which:—

Figure 1 is a general front view of the liquid spraying device according to the invention,

Figure 2 is a part sectional front view of the device.

Figure 3 is an end view of the device,

Figure 4 is a plan view of the device,

Figure 5 is an enlarged view of a middle part of the device marked X in Figure 2.

Referring to Figure 1 the liquid spraying device comprises a rectangular support frame 1 made for example of nylon and having an upright cylindrical housing portion 1*a* centrally of the lower limb 1*b* and together constituting an integrally formed unit.

The cylindrical housing 1*a* has a stepped bore, Figures 2 and 5 on a vertical axis whereof a lower bore 1*c* is screw threaded at 1*d*, and an upper bore 1*e* of smaller diameter thereby resulting in an annular step or shoulder 1*f* being formed between the two bores.

The upper limb 1*g* of the support frame is formed with a central block 1*h* in which is formed a bore from which extends downwardly a liquid spreader element in the form of a circular sectioned peg 2 which may be made of metal. This spreader peg 2 projects for about half the distance between the upper and lower limbs 1*b*, 1*g*.

The support frame 1 is also formed with inclined ribs, 1*i* (Fig. 3) extending along opposite sides of the limbs 1*b*, 1*g*, which may be for strengthening and/or for another reason to be hereinafter referred to.

The lower bore 1*c* is for a coupling member 3, which may be made of nylon, to be screwed into it. This coupling 3 has an axial bore 3*a* and it is integrally formed with a screw nut head 3*b* from the underside of which projects a screw threaded male part 3*c* for releasable attachment to a pipe line, and from the upper side of which projects a boss 3*d* which has screw threads at its upper end by which the coupling member can be removably screw connected to the support frame 1 by screwing the coupling into the bore 1*c*.

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There is further provided a nozzle 5, made for example of metal, and formed as a sliding fit in the smaller diameter bore 1*e* so that the nozzle is removable. This nozzle 5 has a lower flange 5*a* adapted to seat on the shoulder 1*f* and provide a liquid seal. The nozzle 5 projects upwardly from the cylindrical housing 1*a* to leave a small gap from the spreader peg 2, and the nozzle 5 is held in this position by the coupling 3.

There may be different sized gaps between the spreader peg 2 and the nozzle 5 for different sized nozzles 5.

In use of the device it can be coupled to any suitable pipe line such that a jet of the liquid passes through the nozzle and impinges against the spreader peg 2. This causes dispersal of the liquid in a fine mist or spray, and this in turn is further dispersed by its engagement with the side limbs of the frame support. In addition the aforesaid ribs 1*i* on the upper and lower limbs 1*b*, 1*g*, have a desired deflecting action on the mist or spray.

A particular advantage of the construction is that when it is desired to clean out the nozzle 5, or to fit another nozzle, this is readily accomplished by removing the coupling 3 from the support frame so that the nozzle 5 can then be removed through the bore 1*e* and replaced when cleaned or substituted by another nozzle as and when required.

Another advantage is that the device is constructed of only a small number of parts in economic manner and is particularly durable in use.

The coupling 3 or that of any other sprinkler may be adapted for being fitted into a pipe line at any predetermined location in the pipe's length where the pipe would be provided with a suitable socket to receive the coupling there being a one way valve incorporated to be normally closed and to be opened by the fitting of the device to the pipe. This would advantageously avoid the trouble of cutting water off before removing a sprinkler or of spilling of water when removing a sprinkler.

The coupling 3 may be of hand turnable screw form incorporating a filter, or it may be of T-piece form for the attachment of two pipe ends.

WHAT I CLAIM IS:—

1. A liquid spraying device of the kind referred to wherein the frame-like support is formed with a housing portion in which is a stepped bore including a lower larger diameter bore having screw threads to receive a screw threaded part of a coupling member, and an upper smaller diameter bore in which the nozzle is located, the nozzle having an outwardly extending flange which seats on the step in the bore and enables the nozzle to be held in position by the coupling member.

2. A liquid spraying device according to Claim 1, wherein the support frame has rib formations such as for strength and to assist in required deflection of the liquid mist or spray.

3. A liquid spraying device according to any of the preceding claims, wherein side limbs of the support frame are adapted to assist in required deflection of the liquid mist or spray.

4. A liquid spraying device according to any of the preceding Claims, wherein the frame support and said housing portion are constructed as an integrally formed unit.

5. A liquid spraying device according to any of the preceding Claims, wherein the coupling member is of hand turnable screw form and incorporates a filter.

6. A liquid spraying device according to any of Claims 1 to 4, wherein the coupling member is of T-piece form.

7. A liquid spraying device according to any of claims 1 to 6 in combination with a fluid pipe which is provided with a suitable socket to receive the device, and a oneway valve arranged so as to be normally closed and to be opened by fitting the device to the pipe.

8. A liquid spraying device substantially as herein described with reference to and as shown in the drawings accompanying the Provisional Specification.

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239/518

1333651 PROVISIONAL SPECIFICATION

2 SHEETS *This drawing is a reproduction of the Original on a reduced scale*

Sheet 1

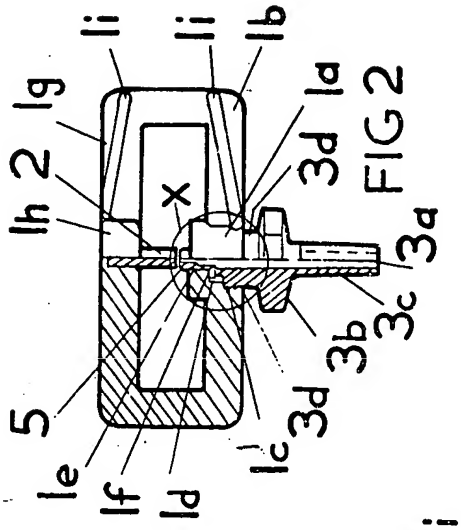

FIG 2

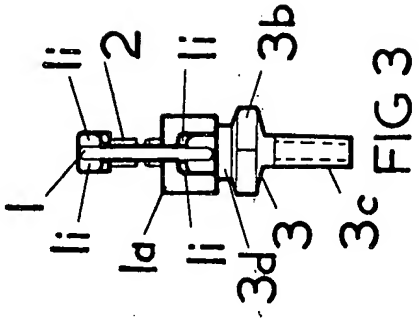

FIG 3

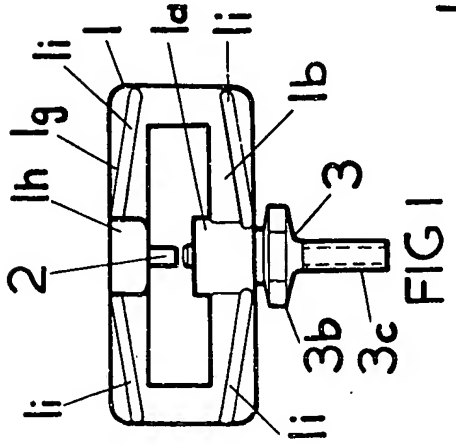

FIG 1

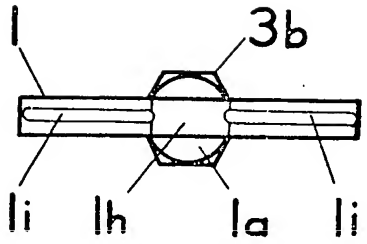

FIG 4

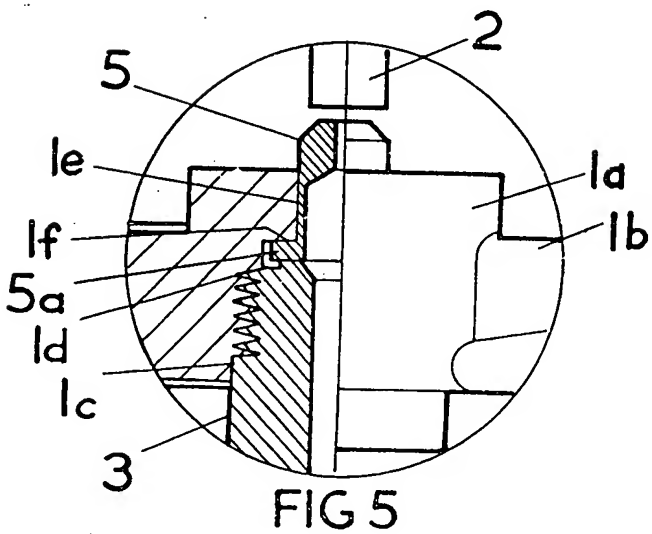

FIG 5